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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/032,959	10/24/2001	Diane M. Landers	DP-306554 / DE3-0257	7053

7590 04/05/2005

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EXAMINER

SHECHTMAN, SEAN P

ART UNIT	PAPER NUMBER
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2125

DATE MAILED: 04/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/032,959

Applicant(s)

LANDERS ET AL.

Examiner

Sean P. Shechtman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 22 February 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-88 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-88 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>2/22/05</u> .   | 6) <input type="checkbox"/> Other: _____                                    |

### **DETAILED ACTION**

1. Claims 1-88 are presented for examination. Claims 1-8, 11, 12, 13, 19, 20, 23-30, 34, 35, 41, 42, 45-52, 56, 57, 63, 64, 67-74, 78, 79, 85, and 86 have been amended.

#### ***Drawings***

2. Objection withdrawn due to the amendment.

#### ***Specification***

3. Objection withdrawn due to the amendment.

#### ***Claim Objections***

4. Claim 67 is objected to because of the following informalities: "embodiend" should be rephrased embodied. Claims 1, 45, and 67 are objected to because of the following informalities: "blank" should be rephrased a blank. Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 23-44 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

5. Claim 23 appears to require the limitation of a blank that machines a coordinate system into an actual part. The examiner respectfully submits that the instant specification fails to provide enablement for a blank that machines a coordinate system into an actual part. One of

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ordinary skill in the art would not know how a blank would machine a coordinate system into an actual part.

6. Claims 1, 23, 45, and 67 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claims 1, 23, 45, and 67 require the limitation of said virtual blank and said base feature being substantially independent of said coordinate system. The examiner respectfully submits that, while the instant specification teaches that each feature added to the coordinate system of the model is independent of the others wherein a change in any feature is independent of the remaining features and the instant specification also teaches that a coordinate system is a reference feature, the instant specification is silent with regard to the virtual blank being either independent or substantially independent of said coordinate system. Disclosure in an application that merely renders the later-claimed invention obvious is not sufficient to meet the written description requirements of 35 U.S.C 112, first paragraph. *Lockwood, v. American Airlines, Inc.* 41 U.S.P.Q.2d. 1961, 1966 (Fed. Cir. 1997).

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-88 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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7. Claims 9, 10, 32, recite the limitations "said master product and process model" in line 2. Claims 19, 41, 63, and 85 recite the limitations "said product drawings" in lines 1-2. Claim 73 recites the limitations "said form feature blank" in line 2. There is insufficient antecedent basis for these limitation(s) in the claim(s).

8. The term "substantially" in claims 1, 23, 45, and 67 is a relative term which renders the claims indefinite. The term "substantially" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The term "substantially" is often used in conjuncture with another term to describe a particular characteristic of the claimed invention. It is a broad term. In re Nehrenberg, 280 F 2d 161, 126 USPQ 383 (CCPA 1960). The court held that the limitation "to substantially increase the efficiency of the compound as a copper extractant" was definite in view of the general guidelines contained in the specification and the rest of the claim. In re Mattison 509 F .2d 563, 184 USPQ 484 (CCPA 1975). In the instant application, the specification and the rest of the claim are devoid of any guidelines to be relied upon by one of ordinary skill in the art in determining the degree of which claimed elements are independent and not independent.

9. Due to the vagueness and a lack of clear definition of the terminology and phrases used in the specification and claims, the claims have been treated on their merits as best understood by the examiner.

### ***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

10. Claims 67-88 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Referring to claims 67-88, the data signal is not tangibly embodied in a medium. Data structures not claimed as embodied in computer-readable media are descriptive material per se and are not statutory because they are not capable of causing functional change in the computer. See, e.g., Warmerdam, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory).

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

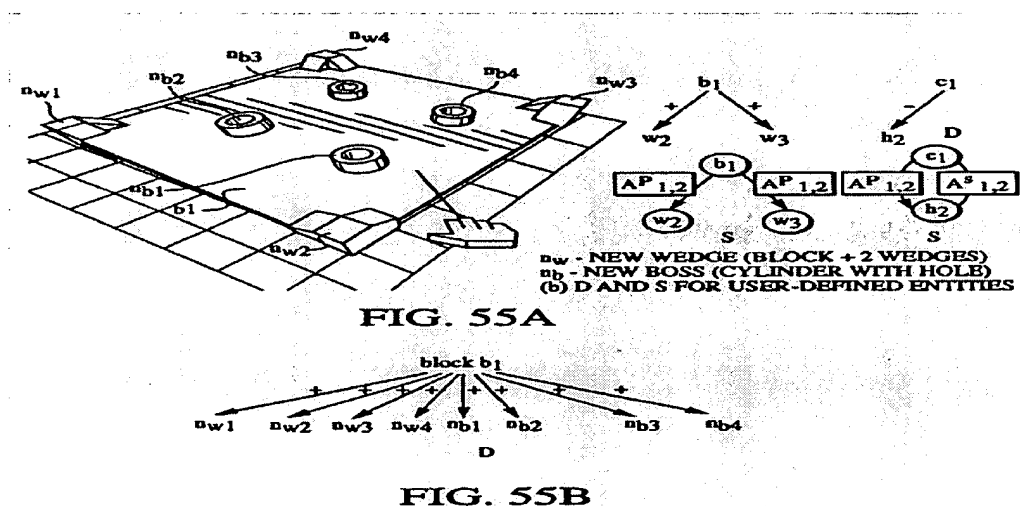
11. Claims 1-88 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 6,629,065 to Gadh (supplied by applicant) in view of U.S. Pat. No. 4,928,221 to Belkhiter.

Referring to claims 1, 23, 45, and 67, Gadh clearly teaches a method, system, part, and computer program of horizontally structured CAD/CAM manufacturing for concurrent product and process design (Fig. 55A and 55B; Col. 36, lines 28-39; Col. 8, lines 5-24), comprising: selecting a blank for machining into an actual part establishing a coordinate system (Figs. 10A-10C and corresponding description, i.e., “rubber-banding”); creating a master product and process concurrent model (Col. 10, lines 22-58) comprising: a base feature (See Fig. 25A-25D; Col. 24, lines 6-32, b1); a form feature; said form feature exhibiting a first associative relationship with said coordinate system (See Fig. 25A-25D; Col. 24, lines 6-32, b2); a virtual blank corresponding to said blank (Fig. 55A, element b1); a manufacturing feature (Fig. 55A, any of elements nw or nb); virtual machining of said manufacturing feature into said virtual blank (See Fig. 55A and Col. 36, lines 28-39), said manufacturing feature exhibiting an second

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associative relationship with said coordinate system; wherein said coordinate system is substantially independent of said base feature and said virtual blank (See Fig. 25A-25D; Col. 24, lines 6-32).

Gadh clearly teaches a design intent graph (D) used to create a design and record the specified design constraints to be used in future design activities. Clearly, D refers to the intended/desired geometric relations between the models features (Col. 20, lines 56-65). Gadh clearly teaches exemplary embodiments of a “machined part constructed in VDSF” with its corresponding D (Col. 36, lines 28-34).



Clearly, the D depicted above, is horizontally structured. The virtual blank is element  $b_1$ , and a manufacturing feature could clearly be any of  $nw$  or  $nb$  with exclusive relationships to  $b_1$ . Gadh clearly teaches elements as add-ins, wherein, as mentioned above, the figures depict “a machined part constructed in VDSF”. Gadh clearly shows the manufacturing features on a grid coordinate system. Furthermore, Gadh clearly teaches a child element (which can clearly be interpreted as any of the  $nw$  or  $nb$  elements) has an associative relationship with the coordinate system. The VDSF display viewed by the user is considered as having a right-left/top-

bottom/front-rear coordinate system, whereby the user issues intuitive commands for a user-viewpoint-dependent method of alignment of said child element. And, Gadh also clearly teaches that VDSF determines the XYZ coordinate axes when a viewpoint-dependent alignment command is issued (Col. 24, lines 6-32). Furthermore, Gadh teaches the representation can be implemented in any conventional 2D-CAD systems or VR-CAD systems utilizing VE (Col. 39, lines 33-44). Examiner respectfully submits that “associative relationship” requires no further explanation and that it will be given its plain meaning as required by MPEP 2111.01. Webster’s Dictionary defines associative as “of, or relating to, in association with” while relationship as “a state or character of being related...a natural or logical association between two or more things, connection.”

Referring to claims 2, 4, 6, 8, 20, 24, 26, 28, 30, 42, 46, 48, 50, 52, 64, 68, 70, 72, 74, and 86 Gadh teaches the above, wherein said associative relationship is a parent/child relationship (Col. 24, lines 6-32; Col. 40, lines 14-57). Referring to claims 3, 25, 47, 69, Gadh teaches the above, further including said manufacturing feature exhibiting an associative relationship with another said manufacturing feature (Fig. 55A). Referring to claims 5, 7, 27, 29, 49, 51, 71, 73, Gadh teaches the above, wherein said virtual blank exhibits an associative relationship with another said manufacturing feature or said coordinate system (Fig. 55A). Referring to claims 9-10, 31-32, 53-54, 75-76, Gadh teaches the above, further comprising creating extracts from said master product and process model, wherein said extracts comprise replicated models of said master product and process model at various operations of said manufacturing (Fig. 55C; Col. 10, line 54- Col. 11, line 7). Referring to claims 12-17, 34-39, 56-61, 78-83, Gadh teaches the above, wherein said virtual blank is positioned and oriented relative to said coordinate system,



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wherein said virtual blank is generated as a three dimensional parametric solid model from a reference set geometry, wherein said reference set geometry is defined by dimensional characteristics of a modeled part, wherein establishing said coordinate system comprises one or more datum planes, wherein said coordinate system comprises: creating a first datum plane positioned and oriented relative to a reference, creating a second datum plane positioned and oriented relative to said reference; and creating a third datum plane positioned and oriented relative to said reference, wherein said first datum plane, said second datum plane, and said third datum plane are orthogonal (Figs. 25A-D and 55A).

While Gadh clearly teaches creating a model and constructing a part in the VDSF, Gadh fails to provide for generating a product drawing of the actual part and generating manufacturing instructions to create the actual part by machining the manufacturing feature into the blank.

While the instant claims call for horizontally structured CAD/CAM manufacturing, as presented by Gadh above, the instant specification appears to describe this horizontal structure with respect to the establishment of relationships that are taught as both horizontal and vertical (See page 4-5 and 9-10 of the instant specification). Therefore, even though the examiner interprets the claims to require at least a horizontally structured relationship in the preamble, the claims do not required any of the limitations in the body of the claims to have such a horizontal structure, exclusive, or non-exclusive CAD/CAM relationship. Namely, the claims do not require a horizontally structured CAD/CAM relationship with respect to generating a product drawing of the actual part and generating machining instructions to create the actual part by machining the manufacturing feature into the blank.

Furthermore, the recitation “horizontally structured CAD/CAM manufacturing” has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). Clearly, the body of the claims do not depend on the preamble for completeness, in fact, applicant has admitted that the intended use of the horizontal structure is not limited by non-verticality (See pages 4-5 of the instant specification).

The claims, as such, do not require any functional relationship between the limitation of an associative relationship and the limitation of generating machining instructions to create the actual part by machining the manufacturing feature into the blank. Furthermore, neither the part nor blank are required to be the product.

In view of the above, the examiner respectfully submits that patentability resides in the determination of non-obviousness with respect to generating a product drawing of the actual part, and generating machining instructions to create the actual part by machining, in real life, the manufacturing feature into the blank. The examiner respectfully submits that generating a product drawing of an actual part and generating machining instructions to create the actual part by machining, in real life, a manufacturing feature, into a blank, is commonly known in the art, and therefore, the examiner is unable to make said determination of non-obviousness at this time.

The examiner believes these limitations are clearly taught by Belkhiter.

Referring to claims 1, 23, 45, and 67, Belkhiter clearly teaches analogous art, wherein a conventional CAD/CAM system is used to produce a part drawing (Col. 2, lines 53-66 of '221) and then generating machining instructions to create said actual part by machining manufacturing features into a blank (See Cols. 7-8, table 2; Col. 1, lines 6-14 of '221). Referring to claims 11, 18-19, 21-22, 33, 40-41, 43-44, 55, 62-63, 65-66, 77, 84-85, 87-88, Belkhiter teaches creating extracts from a master product and process model, wherein said extracts are used to generate manufacturing process sheets, wherein said product drawings include an associative relationship with said master product and process concurrent model (Col. 14, lines 6-11 of '221), wherein the master product and process concurrent model links to a process planning system, wherein said process planning system comprises automated creation of a manufacturing process plan (Fig. 1, element 14; Col. 3, lines 24-48 of '221).

Therefore, it would have been obvious to one of ordinary skill in the art at the time that the invention was made to combine the teachings of Belkhiter with the teachings of Gadh.

One of ordinary skill in the art would have been motivated to combine Belkhiter with Gadh because Belkhiter teaches a part program suitable for machining a part from a drawing without the need for human intervention. Furthermore, Belkhiter teaches a system that reduces lead-time between the request for a part and the machining of a part. Further still, Belkhiter teaches a system that reduces manpower costs (Col. 1, line 62 - Col. 2, line 2 of '221).

### ***Double Patenting***

12. Rejection withdrawn due to the amendment.

### ***Response to Arguments***

Applicant's arguments filed January 7<sup>th</sup> 2005 have been fully considered but they are not persuasive.

13. Applicant argues that Gadh fails to teach a form feature or a manufacturing feature exhibiting a first and second associative relationship with said coordinate system. The examiner respectfully disagrees. As clearly stated in the previous rejection, the term “associative relationship” requires no further explanation and that it will be given its plain meaning as required by MPEP 2111.01. Webster's Dictionary defines associative as “of, or relating to, in association with” while relationship as “a state or character of being related...a natural or logical association between two or more things, connection.” The first associative relationship is not required to be different from the second associative relationship. Clearly, figures 25A-D of Gadh show features b2 or b3 demonstrated an association with the coordinate system.

14. Applicant argues that Gadh fails to teach a coordinate system substantially independent of said base feature and said virtual blank. The examiner respectfully disagrees. Applicant's arguments clearly state alignment of blocks in a + X axis using a coordinate-system independent method of alignment. The examiner respectfully submits that a coordinate-system independent method of aligning blocks of a base feature and virtual blank is a coordinate system substantially independent of said base feature and said virtual blank.

#### ***Conclusion***

15. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sean P. Shechtman whose telephone number is (571) 272-3754. The examiner can normally be reached on 9:30am-6:00pm, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo P. Picard can be reached on (571) 272-3749. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SPS

Sean P. Shechtman

March 30, 2005

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